

Claims

- [c1] A probe device, comprising:
 - an insulative body;
 - at least one supporter positioned in the insulative body;
 - a probe positioned substantially at the center of the supporter; and
 - a conductive wire positioned in the insulative body and electrically connected to the supporter.
- [c2] The probe device of Claim 1, wherein the supporter is a helical spring.
- [c3] The probe device of Claim 1, wherein the supporter comprises a plurality of beams positioned in a radial manner with the probe substantially at the center, and the included angles between two adjacent beams are substantially the same.
- [c4] The probe device of Claim 3, wherein the supporter further comprises at least one ring connecting the beams.
- [c5] The probe device of Claim 1, wherein the insulative body comprises an opening and the supporter is positioned in the opening.

- [c6] The probe device of Claim 5, wherein the opening is triangular, the supporter comprises three beams and at least one ring connecting the beams, and the included angles between two adjacent beams are substantially 120 degrees.
- [c7] The probe device of Claim 5, wherein the opening is quadrangular, and the supporter is a helical spring.
- [c8] The probe device of Claim 5, wherein the opening is quadrangular, the supporter comprises four beams, and the included angles between two adjacent beams are substantially 90 degrees.
- [c9] The probe device of Claim 5, wherein the opening is hexagonal, and the supporter is a helical spring.
- [c10] The probe device of Claim 5, wherein the opening is hexagonal, the supporter comprises six beams, and the included angles between two adjacent beams are substantially 60 degrees.
- [c11] The probe device of Claim 1, wherein the material of the probe and the supporter is selected from the group consisting of copper, nickel, cobalt, tin, boron, phosphorous, chromium, tungsten, molybdenum, bismuth, indium, cesium, antimony, gold, silver, rhodium, palladium, platinum, ruthenium and their alloys.

- [c12] A probe card, comprising:
- a circuit board having at least one test-connecting site;
 - a probe head having a plurality of probe devices, wherein the probe device comprises:
 - an insulative body;
 - at least one supporter positioned in the insulative body;
 - a probe positioned substantially at the center of the supporter; and
 - a conductive wire positioned in the insulative body and electrically connected to the supporter; and
 - an interface board, comprising:
 - at least one first signal-connecting site positioned on the upper surface of the interface board for electrically connecting the test-connecting site of the circuit board; and
 - at least one second signal-connecting site positioned on the bottom surface of the interface board for electrically connecting the conductive wire of the probe head.

[c13] The probe card of Claim 12, wherein the supporter is a helical spring.

[c14] The probe card of Claim 12, wherein the supporter comprises a plurality of beams positioned in a radial manner with the probe substantially at the center, and the included angles between two adjacent beams are substan-

tially the same.

- [c15] The probe card of Claim 14, wherein the supporter further comprises at least one ring connecting the beams.
- [c16] The probe card of Claim 12, wherein the insulative body comprises at least one opening, and the supporter is positioned in the opening.
- [c17] The probe card of Claim 16, wherein the opening is triangular, the supporter comprises three beams and at least one ring connecting the beams, and the included angles between two adjacent beams are substantially 120 degrees.
- [c18] The probe card of Claim 16, wherein the opening is quadrangular, and the supporter is a helical spring.
- [c19] The probe card of Claim 16, wherein the opening is quadrangular, the supporter comprises four beams, and the included angles between two adjacent beams is substantially 90 degrees.
- [c20] The probe card of Claim 16, wherein the opening is hexagonal, and the supporter is a helical spring.
- [c21] The probe card of Claim 16, wherein the opening is hexagonal, the supporter comprises six beams, and the included angles between two adjacent beams is substan-

tially 60 degrees.

- [c22] The probe card of Claim 12, wherein the probe device further comprises a pad electrically connected to the conductive wire and the second signal-connecting site of the interface board.
- [c23] The probe card of Claim 12, wherein the probe head further comprises a plurality of pads electrically connected to the conductive wire of the probe device and the second signal-connecting site of the interface board.
- [c24] The probe card of Claim 12, wherein the material of the probe and the supporter is selected from the group consisting of copper, nickel, cobalt, tin, boron, phosphorous, chromium, tungsten, molybdenum, bismuth, indium, cesium, antimony, gold, silver, rhodium, palladium, platinum, ruthenium and their alloys.
- [c25] A probe card, comprising:
 - a circuit board, comprising:
 - a plurality of test-connecting sites; and
 - a plurality of conductive paths for connecting the test-connecting sites to the bottom surface of the circuit board; and
 - a probe head comprising a plurality of probe devices, wherein the probe device comprises:

an insulative body;
at least one supporter positioned in the insulative body;
a probe positioned substantially at the center of the supporter; and
a conductive wire positioned in the insulative body and electrically connected to the supporter and the conductive path of the circuit board.

- [c26] The probe card of Claim 25, wherein the supporter is a helical spring.
- [c27] The probe card of Claim 25, wherein the supporter comprises a plurality of beams positioned in a radial manner with the probe substantially at the center, and the included angles between two adjacent beams are substantially the same.
- [c28] The probe card of Claim 27, wherein the supporter further comprises at least one ring connecting the beams.
- [c29] The probe card of Claim 25, wherein the insulative body comprises at least one opening, and the supporter is positioned in the opening.
- [c30] The probe card of Claim 29, wherein the opening is triangular, the supporter comprises three beams and at least one ring connecting the beams, and the included angles between two adjacent beams are substantially

120 degrees.

- [c31] The probe card of Claim 29, wherein the opening is quadrangular, and the supporter is a helical spring.
- [c32] The probe card of Claim 29, wherein the opening is quadrangular, the supporter comprises four beams, and the included angles between two adjacent beams are substantially 90 degrees.
- [c33] The probe card of Claim 29, wherein the opening is hexagonal, and the supporter is a helical spring.
- [c34] The probe card of Claim 29, wherein the opening is hexagonal, the supporter comprises six beams, and the included angles between two adjacent beams are substantially 60 degrees.
- [c35] The probe card of Claim 25, wherein the probe device further comprises a pad electrically connected to the conductive wire and the second signal-connecting site of the interface board.
- [c36] The probe card of Claim 25, wherein the probe head further comprises a plurality of pads electrically connected to the conductive wire of the probe device and the second signal-connecting site of the interface board.
- [c37] The probe card of Claim 25, wherein the material of the

probe and the supporter is selected from the group consisting of copper, nickel, cobalt, tin, boron, phosphorous, chromium, tungsten, molybdenum, bismuth, indium, cesium, antimony, gold, silver, rhodium, palladium, platinum, ruthenium and their alloys.